

IN THE SPECIFICATION:

Please rewrite paragraph 2, bridging pages 1 and 2 with the following rewritten paragraph.

2. Description of the Prior Art

Fig. 1 shows cooling means for a conventional ball screw. As ~~shows~~ shown in Fig. 1, a tunnel like through pathway 11 is bored penetrating along the longitudinal direction of a screw bolt 10 so as to provide a path for a cooling liquid thereby carrying away the heat of the screw bolt 10 imparted by the screw nut 12 and the circulating steel balls. It is well known to men skilled in the art that the ~~operation~~ operating principle of a ball screw and nut assembly is the screw nut 12 ~~entraining~~ engaging a work piece or a working platform moves along the lengthwise direction of the screw bolt 10 by spirally rotation of the screw nut 12 with respect to the screw bolt 10. The screw nut 12 is coaxially sleeving over the screw bolt 10 and both structures are coupled with two threaded grooves each formed on the inner surface of the screw nut 12 and the outer surface of the screw bolt 10 respectively with a plurality of rolling balls interposed therebetween. By so the work piece or the working platform is able to perform its work by moving along the lengthwise direction of the screw bolt 10. In fact, owing to the fact that it is the screw nut 12 that actually carries the load of the work piece or the working platform and always in contact with the rolling balls so that its heat dissipation is ~~priority~~ difficult. On the contrary, the screw bolt 10 is constructed far longer than the screw nut 12 so that ~~most portion~~ a major part of it is exposed to the air with a good air cool effect. Therefore, to form a cooling agent path along the lengthwise direction of the screw ~~bolt~~ bolt 10 for heat dissipation as that has been commonly practiced in conventional techniques is definitely nonsense as putting the cart before the horse. Besides, forming a through pathway 11 coaxially along the longitudinal direction in a slim screw bolt 10 accurately requires a very fine technique to perform, a slight inadvertent alignment of center position may cause vibration of the screw bolt 10 during operation, or to the worst, result in cracking of the screw bolt 10.

Please rewrite paragraph 3, bridging pages 4 and 5 with the following rewritten paragraph.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Q2 Fig. 2 is a schematic view of a ball screw with cooling means in a first embodiment of the present invention. As shown in Fig. 2, the ball screw assembly 30 in this embodiment comprises essentially a ~~crew~~ screw bolt 20 and a screw nut 31, and a plurality of rolling balls 40 made of steel, or ceramic, or plastics. A spirally threaded groove 201 is formed around outer surface of the screw bolt 20, and another spirally threaded groove 311 corresponding to the former groove 201 is formed around the inner surface of the screw nut 31. The rolling balls 40 interposed between the two grooves 201 and 311 make the screw bolt 20 and the screw nut 31 able to rotate with each other. An outer cover 32 is covering over the screw nut 31 such that a cavity 33 is formed therebetween for a cooling agent to flow through thereby cooling the screw nut 31. In this embodiment, two O rings 34 and 35 are provided between the outer cover 32 and the screw nut 31 to serve as leak proof element for preventing leakage of cooling agent. A cooling agent entrance opening 312 and an exit opening 313 are provided on the screw nut 31, and the openings 312 and 313 are each connected respectively with a pipe coupling 36 and 37, which are further connected respectively to pipes 38 and 39, the pipes 38 and 39 may be hoses or metal pipes. With this structure the cooling agent is flowing into the pipe 38, passing through the coupling 36 entering the cavity 33 from the entrance opening 312, and absorbing the heat from the screw nut 31, and flowing out of the cavity 33 from the exit opening 313, and returning to its source by way of the coupling 37 and the pipe 39 with the absorbed heat so that the ball screw assembly is favorably cooled down.

Please rewrite paragraph 1, on page 5, with the following rewritten paragraph.

Q3 Fig. 3 is a schematic view of a ball screw with the cooling means in a second embodiment, and Fig. 4 is a cross sectional view cut along line A-A on Fig. 3. In order

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to further improve cooling effect, a portion of outer wall of the screw nut 31 where influence to function of the ball screw assembly being evaluated to be negligible is partially pared to form an enlarged portion 314 for the cavity 33. Wall of the portion 314 is formed into a planar or a curved surface by paring the screw nut 31 parallel to the longitudinal direction of the screw bolt 20 or in encircling around its transverse direction such that the cooling effect is significantly upgraded owing to reduction of wall thickness of the screw nut 31, and increasing the contact area between the cooling agent and the screw nut 31.
